1664-243454

169430

DEEMEAL-ACC-NO:

DEEMENT-MEEK:

combjex

.bdsenu

monomer,

phase

TITLE:

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Hologram recording material for mfr. of vol-

pologram includes high molecular cpd. of vinyl!

cbq. having at least one polymerisable ethylene

pouq' chanine dye and sulphonium organic boron

TYMENVER

INVENTOR: TOBA Y; YAMAGUCHI T ; YASUIKE M

PATENT-ASSIGNEE: TOYO INK MFG CO[TOXW]

PRIORITY-DATA: 1992JP-350731 (December 4, 1992)

BIAG-BUG DOB-NO :YJIMA9-TWBTA9

YPPLICATION-DATA: AL June 24, 1994 A 2922/190 90

APPL-DATE ON-J44A WARL-DESCRIPTOR FUB-NO

December 4, 1992 1992JP-350731 A\N AESSETISO GU

G03E7/028 20060101 G03E1/027 20060101 G03E7/004 20060101 CIbb DATE LXPE Ibc INT-CL-CURRENT:

G03HT\0S S00@0T0T CIBS G03E1/038 20060101 CIPS G03E1/029 20060101 CIBS CIBS CIBS

YESTRACTED-PUB-NO: JP 06175565 A

:TDAXTEAA-DIEAE

the single polymer of vinyl monomer or copolymer of at least two mol, cpd. of A hologram recording material includes the combination of (A) high

6/19/2009, EAST Version: 2.3.0.3

## 6/19/2009, EAST Version: 2.3.0.3

CHEMICAL-CODES:

EbI-CODES: A01-E05C'

G00-D; G00-E; G00-E03B; G00-E03G; G00-E03D; G00-GT8;

ESS-B03;

CbI-CODES: Y08-C04; Y08-C01; Y11-C05B; Y15-F05C; E02-C05; E10-Y01;

DEEMEAL-CIPZE: V88 EI8 G00 B84 A07

CAFMINE DAE ENTEHONION OFGENIC BORON COMPLEX

UNSATURATED BOND

COMPOUND POLYVINYL MONOMER ONE POLYMERISE ETHYLENE

HILTE-TERMS: HOLOGRAM RECORD MATERIAL MANUFACTURE VOLUME PHASE HIGH

CHOSEN-DEAMING: Dwg.1/1

mīd.

pe essily

be easily

of high definition, high refractive index and high transparency can

the wide wavelength area, and chemically stabilised, can be obtd. The holograms of bish definition high refractive index and high transparency can

USE/ADVANTAGE - The vol. phase-type hologram having high sensitivity throughout throughout state of the part of th

the vinyl monomer.

bojkwer ot

carboxyl gp., phosphoric gp., chloromethyl gp. or epoxy gp., to the

introducing the vinyl monomer having a functional gp. such as

oprg. by

pref. the high mol. cpd. having crosslinkable (meth)acryloyl gp., is

heat to the same.

light and/or

The manufacturing of the hologram by using the hologram recording material comprises exposing the recording material.

less than 0.005.

don ai (a)

the refractive index of the high mol. cpd. of (A) and that of the cpd.

high mol. cpd. (A) has the crossinhable (meth)acryloyl gp. The difference of

unsaturated

bond, (C) cyanine dye and (D) sulphonium organic boron complex. The

monomers, (B) the cpd. having at least one polymerisable ethylene

TYniv

ENHYNCED-BOLYMER-INDEXING:

Chemical Indexing M3 \*01\*
Fragmentation Code

```
3430B880I
                            маткияп сопроиная
                                 02702 02933
                           KING TUGGX MAMBELS
             MY82 Q130 Q349 R043 W003 W030 W335
M332 M343 M412 M215 M250 M230 M231 M232 M240 M241
M273 M280 M281 M282 M283 M311 M313 M315 M321 M322
WISE WISS WISS
              HASS HASS HASK HASP HAST PAST WI
HATS HATE HASO HAST
                   HZOI HZOZ H7
                                 HIRT HIRS HS
ZETH TETH
          GO40 GIOO GIII GIIS GSSI GSSS G262 HI
GOIT GOIT GOIS GOID GOTO GOTT GOTS GOTO GO38
E635 E810 E820 E820 E820 E836 E310 E336 G001 G005 G010
DATS ETEC ETEE ETEE ETEE ETEE E400 E488 E250 E288 E600
DOTS DOTS DOT4 DOT6 DOT6 DEGT DEGT DEST DATE
                           Fragmentation Code
                         Cuemical indexing M4 *03*
                                   8430B8203
                            warkush Compounds
             M240 M620 M772 M782 Q130 Q349 R043
W392 W393 W414 W416 W210 W220 W230 W231 W232 W233
MAZI MAZI MAZI MAJI MAJI MAJI MA42 MASI MASI MASI MASI
MZ81 MZ82 MZ83 M311 M312 M313 M314 M312 M310 M320
WSSS WSSS WSS4 WSS2 WSS2 WSS3 WSS3 WSS0 WS80
TZZW OZZW 9TZW STZW BZZW ZZZW TZZW OZZW ###W
GTOO GITT GITS GITS HAST HAST WIST WISS WIS4 WIS6
B402 B202 B150 B144 B802 B837 G010 G050 G051 G040
                           Fragmentation Code
                         CUEMICST TUGEXING W3 *02*
                                    EGGRAGERA
                            warkusn compounds
         WEST WEST WEST WALK WARS GIRD GRED ROSE
METS WELL METS METS MESO MEST MESS MESS MESS MESS
M232 M233 M271 M272 M280 M281 M282 M283 M311 M312
WITE WITE WISO WIST WISS WISH WISH WISH WISH
MIZ9 MI42 MI46 MI47 MI48 MIIO MIII MIIS MII3 MII4
WITS WITE WITE WITH WISI WISS WISS WISE WISE WISE
      K422 K423 K432 K433 K441 K442 F142 F186 F1
 GT00 GTIT GTTS G223 G263 G266 HAST HAST 128T K0
GOTO GOTI GOTO GO30 GO31 GO35 GO30 GO40 GO20 GO21
CST C3T C3T E0TS E0T3 E0T4 E0T2 E0TE ESSO G0T0 G0T6
```

NOW-CBI gecougary Accession Numbers: 1994-192076 SECONDARY-ACC-NO: 1994-111180

OIL DO L

DOTAWES-WOLTIPUNCH-CODES-AND-KEY-SERIALS:

017 ; D12 D10 D51\*R; A999 A179 A157; Polymer Index [1.4]

Folymer Index [1.3]

Folymer Index [1.3]

B4240;

OT1 ' NDOT' Ö3030 Ö8040 Ö8000' B3030 B4280 B4283' B3030 B4380 bojymer Index [7.3] D5031' F3030 F5013' b0404\*H D0I D55 D45 B41' K3841\*H K3130'

17334: 16969 17303: bodee\*B DOI DSS D42 E41: K8847\*B K8190-E76 E41 D60 D60 CI JY D68 D55\*B; H0011\*B; H0011\*B; W8999

E76\*R F35\*R

011 : G0500\*K G0052 D01 D12 D10 D21 D23: G0052\*K D01 D21 D23 bolymer index [1.1]

# 母番網公離出指幹(II) (A) 舞 会 指 詩 開 会 (SI)

内折会先對遊蝶卡

べ下将東世を1番を目し二藤京凶矢中盛京東

#### (4f) 引着特闳本日(6l)

			129	7/027	CO3E
				620/2	
〉妹コ百銭最 (頁 16 頁) 最後更本権	未端末 未能去審			1	
東洋インキ製造株式会社	<b>入脚出(IT)</b>		167025		(21)出版条号
學記書8目丁名壽東区共中語京東山 山 岳男 口山	者便廃(ST)	日】	(21(3661) 本 1 海本		日瀬田(32)
マトギ東号に1番8 目 3 番13号東京本 東京大学会社内 大学会社内	# HERE (02)				
五葉 株品 マトギ東号81番8目下二番京刃央中塔京東	を授業(ST)				
內并会先對遊襲中	差便發(SL)				
円 搬装					

近式盗螻の4ぞりロ本監掛位離却ない用されまむ及样材銀法4ぞりロ本 【海各の脚祭】(43)

(7) (奥特) (日的) 優か心霊後を示すホログラム記録材料おびぞれ に目的) 優か心場能が相望ホログラムの製造方法を提供する ことを目的とする。 (構成) ビニルモノアーの単一重合体式たは2成分以上

。おおお嫌の4670

- という回旋を考していて、 という回旋を手ででしている。 でしている。 でいる。 でいる。
  - - に発生に対明が割するの明には、に子的公にはて制度を 持、直が線度、同時効果を及び動性に優れたロット も、直が線度、 同時効果を及び動性に優れていう 人では本が表現を行る用いた簡単を体制位相型ホログラ して表現が表現を行う。
- 【1000】 【188号を指定され、代字的公定性や制導線 30 では、原的本に登みある分子やに1個以上の場合は終業

#### 

- 本と表現を表示のである。そのに対して、 ・ とまが報告を ・ は、 、 は
  - 別なおされる事一単の一ない子が一、 別なおされる事一単の一ない子が一、コート 神舎か子代為るもでお合連をかっているテルニンのよりは、 かっている。 かっている。 のののでは、 のののでは、 ののでは、 のので

- 次グライトである。
  次グライトである。
  次グライトでは、
  をは、
  か、
  は、
  を、
  が、
  <p
- こかで見またよる必要ないのでします。 からのようよう。 実現計台車の112個と同様である代表の では、現場である。 では、現場である。 のでは、 のでは
- 上向暦…(1、4、多卦件数悪(なれる下齢)戻多間執光器ブバルは 00mJ/cm2 オーダーダーであり、ホログラムの複製に 「黄、お田研製器されは3)線網具数具の体体製品ムでり ロホ鶫、されなしかし、ふいてれち延実プニ)(年199 9904) MU Journal of Imagin olography Wil XI212卷, 30頁(1 No 数値されることが、SPIE「Practical H **ホムモヤロホかれ掛け返び返り性に優かない。 次島権高** 、単校社回高、私人労马納技団公のこ。るいアパち示機 それロホるパミ海鞘ら心解説開送も及、一ケしチ針くし キエ朴酢と一マリ本型壁巨熱る专と類群をとこるや許多 基拠階ひ合き干別くそロバルレイる各駅各表がボー・ホらさ 30ーム/まれ199ーム丘津 まりついもご解点や28 は、特別平2-3081号公報あるいは特別平2-30 た時、るいフパさ示開が出査媒の予よいる&(ひよは) 体材製品ムミヤロホホーを使ったサイヤマな調画なる こるも登場多ムモヤロホア4の米森略干フノム野工野吸 の一脚、パな」と要处を野工程処先級な雑単は446.6次 業勢フいさコ野工武襲のムモヤロホ、在一【1000】
- 1 金機のとなるパブ日間発き別工歴処先基プパはコ高端 階切りや機定る1まか評計経版と基格、24、計解的の 26不到の料理をもよい知自、今らの場段をも長辺は16 5日地、22、「ツィブ市支払びのする1まが経過か それ数値の概引等、14水でる6万計構築性が相合並る1

- 本基金基化トロリペペ (をx) 交額恒需率で対合重要の O2 の3 空れーリでれてロギコぞイキ 、れこをくかロできど 、リニルボイト、リキイアをて、リジキノロクシ、リキ ペプリキメーム プリシキノリ・キエーム プリキャリキメジ +11, 3-4117411, 2-14117411, 1, 3-CN(+X-5, NC+7, N=1, N+CX, N+CX 115\$V 1145XXXX 1145X 1146-119 1,11+1-002, 11+1-n, 11907(1, 100) ロヤ、ハキエ、小キメ、おフノ3本合家の一ケノチハニ 当な類のこ。るを示例き(A)酵台外子代高さきつ場合 単夫の一ケ\チルニョの上以代滅2よりたまれ合連一単の の主が出る。 【0011】発す、本郷朝で機能されるヒニルモノマー (0010)以下、詳細にわたって本発明を設する。
  - **ホケ光社金線のムモドロ本型用が附本るする際料をとこ** る人間を無(む)なり 光および(または) 熟え刻える 市を拝成を信息なって、 調木口クラムを終れるであれる人 ヤロホフィル用多样特殊店ムモヤロホの蘇場れがずい。伊発 の三年しいな脚系の一体るヤム着待をよこひ合きか合株 の(U) 刺激素で示蔑許Aで二ホパスもよけ(D) 楽曲 ペニイマ 、(B) 概合かるで再上辺線 L ひょうかを含合 請昨歳不かくイキエな淵声合重 、(A) 酵合3F千代高る あずお台連共のーケくチバニコの上は代別とおうまお合
  - 重一単の一ケくチルニコ、上肥液の四線。るよう拝計録 品ム**そ**ヤロホの難強に押祭の一幕るする数許多とこる& (日) の最新率との原数率表が0、005以上で るで青土以降 1 3 3 > な火を合品的橋不かてイキエな錯 世合重、3率市田の(Λ) 軟合か千代高るあず本合連共 のーマくチバニコの土以代記245元4合庫一単の一マ √子小ニゴ、北限祭の三葉。るるづ拝材製品ムモヤロホ の対応の研究の一度るでも独特をよこるで再を基べたロ Uでて(セ×)な路戸酢栗、社(A) 桝合か千代高る& ラ料合重共の一下し子小ニコの土以代表2お六生料合連 一単の一ケノチルニヨ 、制御終の二歳 。るるでは内縁出 ムモヤロホるでと監督をとこむ合きせれ合み掛の(U) 対談条で木類再Aで二ホバスび数(3)条色な二て 、(8) 桝台引るで育士以牌1343な火を合辞印題不 型ペイキエな額[w台庫 , (A) 桝台外千代高る&ケ州台 重共の一下しチルニョの土以代流なおごまれ合重一単の
  - 、果諸へし信募意幾>〉〉で海室を向目揺上、J数巻き点 點の主意、よる音形発本【独手のめ立るで死端を膨無】 [8000]

ーケしチルニコ 、お神祭の一策 、さみなや【6000】

\*るあてのようた至の世発本

\* 9 年ンスころで発展を近れ直線な製造(の ムでやロホ壁肝辺断水ごい用を介きび及ば再線漏ムでや 日本で香る野谷ごれ動ういは当計博数も及単酸市国、要 類様で且、辺邊高ブロはJ級病兵数で払います。 パカス 野群故職権、北世発本【戦編るでろくよし先権な世発】 [7.000]

。ウィブリ青き点欠のとないし繋が瞬時の思

一个~チャーコの上げ代別とおびまれ合連一車の一个~ チャニコタルら用動プロは5世後本、54次【2100】

\*9494 **率体材合重共の土以代流2のみれこさま、パみ刊率体材** 台車の一としまれころの3なれーをナイバニス、ルーモ #44(E3 )<66004(E3 )<6604(E3 )4(-**ツベベルス・ロービニルビロリドン、Nービニルカルベヤ** スプラ '4/ころがか '4/ころ線程 'ベエイ/イイ/ころ 'ベ JEKNEK-D , YJEKOKNC-M , YJEKN キスロロク 、ソイキスチロベータ 、ソイキスパキメジキ の ロオコート、ベイキスジキロオコート、ベイキス、小い FK, N. N-VXFNTOUNTEK, TOUGH マーの進合体、アクリルアミド、Nープチルアクリルア し子小子.た工類小じやヤ(や×) 育舎基類くじの3.なイ ーイリクマ (タ×) 強くUお送さ トサキャンマチエ 、村 合並の一マしチルニゴるや青台を基小シキホッカのゴな 緒れをてロドゴヤキハインロでジキドイトロリクヤ(を ×)-Z、類1/6/ロドコセイナルコロアジキをバトロ じゃて(そx)-2、強いをていコロてぐキャルトロじ そで(を木)-2、鯖れをてれキエジキをれトロリクで (6×)-2、歯(ハロハキエジキをハトロリCY(8) ×)-2、猶否息支化ニコーq、麺ペトイテ、類ペビや 小いでで(や木)るで百名を基しらてのSグルギエしら TVIFT- 7 , VIFIL STVIFIC-N , N , VIFI 、ミヤハキ×ジーN、N、柏合並のハキスエ細ハリてヤ (をX)るを所含を基くそくぐキロパアのとなれるロヤ いいくくきイトリイ、朴合重のハテ.た工婦ハリヤヤ(を X) るで育者を予規ペヤロバ(の3 24(3 ロてチロてペー E , S , VI + Y > D + VI C + C + , VI Y T D + VI C + T **タヤハ 、ハコロてロドハてモイテ 、ハキエロドハて**じイ 、朴合重(カーケしチハヤ.X.工婦ハリヘヤ(タX)るで育 名き予取録の3ないキエバニサロェマ 、バキドバニサロ ェ C、朴合連の一ケし子ハイスエ強小リワイ(8×)る を許含多葉でキホエの3なイーマリウマ (ex) パジジ Uや、本台並の一ケしチバモ人工類41UでY(QX)る す青舎多類者表の3な小リニェCコート、小一にリヤン イチエヤキハシキしェヒータ ノリーヒリヤンイキエモイ **やくましょてート メルーセルヤンマキエジジキしょてー** 4、11キエリニェヒール、11ピイグ、11ニェヒリキヒー ナッタナート ノリニェアハニホリたジキイアート ノリニ エマハニホリカシキーエート 、ハニェマハニホリカシキ イメート、ハニェて、朴合重の一ケしチハテスエ婦ハリ クイ (を) るを再る基準本の3ダイー4をC4(3ロて (メタ) よりりロイルオキシエチルー2、-Eドロキシ ール、2ーヒドロキシー3ーフェノキシブロビル、2ー ヒドロキシブロビル、 4ーヒドロキシブチル、 がりセロ - 2、人パキエぐキロドコー2、刺合重の~でしまパヤス 工婚小してて(そく)の小を小て沈梨ひ及井封代、郑羅

(6×)ルニエイルニホリカシキイエート、イーイリウ て(6×) ルニェイルニホルカシキイメール , イーノリ クヤ (タ×) バニェア、酵合力イーマリクヤ (タ×) 青 ⟨√ (∃□∀) ₹IA√ ( X (X ∃ ₹□∀ € √ ↑ ) √ -164 (8x) 44IC#(ICFOL-9.4-1 U47(4x) オンキャンマキエリイバーしょてチロア 01, 1-1007 (4X) NODEFERCE, L たどのフッ素原子含有(××)す合子協業々での3.2

イーソリクT ( & X ) からテロをかてたてをやし、ノー 1067 (4x) N+VNDXNC66k, 1-106 1 (6x) 1/30/04/16470 1-1061 (6 x) 1/20/04/16614, 1-1067 (8x) NEXERNICUL BUTXXXVICOT (8X) U およいるあなのろなれーイニマテ ノルーイコガン ノルー にじやいキベンドネ 、ハーイじんじエをベンジ 、ハーイ いんじエキング 、くいロアハーロキトじょ 、ハートジン 44-01,1,4-444-01,1,4-44 1, 1-477-2 , 1 , 1-444-4 , 1 , 1-44 VNロヤーE , I , N−C((ヤハキング未本 , N−C() OF ANTHIETT IN-EURNIFIUM IN-EU

ヤンマキエジ、ハーにリヤンマンキエ、別人門、酵舎小シ トロメノリンを さらには、監査核ポリヒドロキ ーンハルはハニコーN・イーイじゅて (それ) ハキエジ ドロメコース、メミヤルリカア (タメ) マーヒドロキ EXMURX (8X) , 1-1007 (8X) MAIL リホルチ ノーソリクヤ (タメ) ハキエしミヤハキメジ 14-1042 (4x) 1102 14-1042 (4x) 1/3/2014, A-40/47 (4X) 4/0/2014 3/64 モ、耐合かれモスエルキハヤ婚ハリクT(々木)の3次 イーソリイヤ (4×) パニハネヤト、イーソリイヤ (4

K) 11540065, 1-10164 (8K) 1172, 1 ーマリクヤ ( & K ) 小キ K 、 桝合小舖店園不の3.な舖と トイケ、嫌くにそと、嫌い(リヘイ(モス)【ト100】 い。次にこれらの化合物を解示する。

よるプであず断合出華主代高3305 , (あつのよび古 **ターケヒリトコ船の一ケノチバニコ第目をおかま第百単** 合きかなくとも1個以上有する化合物(B)としては、 お訴訟不計
イキエ社合重の用動
で把発本【E I 0 0 ] . 6 85 XX Z 2 8 6 34

ベエトや
井蒸離 , 蕎夫英雄 , 郷太元末本 , し千代高
計光 鶏・スーリン計調機おりる名、(事と701) ヘトヒト **マンエトセガ洗瓶、客脚取田衆、民郷倉岩、、「千代高君 初凤「スーリぐ千代高卦譜券 , 知太陽 , 却千代高卦30凤** な動のこ。るれる得ファよコとこるで人称を基小トロリ クマ(ペ×)、JN報合か主化高ひ合プしと近単ターケ/ チルニコるでする基語官のとな基くをホエおいる高基へ キャロログ、基盤くい、基小ミキホバカ、基準水、内の **寿金をひーマしチハニコ帰補 、もりアノ 3桝合かそ公高る** 

、基小キメルニホルたくキイメ、基小キメチロて、基小 02 そとロロク、基小キメノイジ、基小シニイ、基小キリヤ 、基小シナェモ、基小ニイタイ、基小シマン、基小ニハ 市、基小キント、基小シキハロやシ、基小リアテス、基 いいてそりた、英いいティ、基いいて、基小キウト、基 ハンキハ、基ハキング、基ハキヒーナィョナ、基ハキヒ -098、基小キア-n、基小キエ、基小キメ 、よりアJ 3基4キ4代はようバリアで付き基拠置、3.6で押傷フ (1013基製置る付お3)(1) 定學一,33次[8100] す。) で表されるシアニン色素(C) 赤砕けられる。

# O3 CH3 CO3 非文献CH3 C9 H1 CO3 €出 2 E40 , a4d2 , tolo ,a4aA , a44 , t →ても異なっても良く、Xは、ハロゲン、NO3 、BF あつい同いい互、J示を基小ニケハておれた基本がそいそ て、基小ーリで教室、基小ーリケ、基小を小で地画、基 または2などの整数を示し、R1 及びR2 は、アルキル =CH業、またはC(CH3) 2基を表し、nは0、1 立に、酸素原子、硫黄原子、セレン原子、NH基、CH ・ 関います。 はいままが、 はそれぞれ地域は、 はそれぞれが、 はそれぞれが、 はそれぞれが、 はんしょう。

(1) 海佛 [9100] (I) 3538

- 、もし(こ) 集当くニヤぐの印動で使発本【こ【00】 。るれられがなるな物

合外イーリリヤヤ(ペメ) 背合予原属金重の3なイーリ 06 じそて(そく) 公路乗 ノーイじそて(そく) ハキエハ ニサロェイ・イーイリケイ (そx) ハキメルニチロェク 、甜悶をくホエかい((ペメ) ノーマリ(ペイ(& ×) 込力変オぐキたく ( ' ロ' C' ) キエAバーしェビス 3 , イーリリクヤ (タX) 対変すぐきたくり (コロヤ) キエの錆小ドヤジソト、耐合外イーリリクヤ(タド) じれよい1るおそのギハーロガロコ ノハーヒデカ ノンシル マン、くくキロオゴ、対え間、桝台小くキロオコリホ鉱 香芸、「酵合小イーJUCT (CK) るや許含含原香芸の となっていり(1977年)に記載されている方式に合うしている。 (1977年) マッカー マッカー スティーへいん (18 ) マッカー スティース (18 ) マッカース (1 ) マッカース 1164 A-4048 (8X) 40=x43-A A-1664 (68) 11-E66/144444V(4/4) -4 .4-1047 (4x) 11-EU4474\*IE47 ベキノエムーケ 'リーハリイヤ (4x) リーヒルゲベイ キエジジキしェアート、イーリリクア (QX) VIキエリ ニェヒーカ ノーイリセヤ (モメ) カキエジキしェヒー \$ `4-164L(&X)1665> `4-164L(& x) 11=xC11+C-1=1=1-4, 1-1047(4 ×) リニェイルニホルセシキイヤート、イーリリセヤ

(1971年) に記載の方法に従い合成することができるし、また、(株) 日本選光色素研究所から入手することもできる。

よができる。 10019] この様な一種式(1)で表されるシアニン 色素は、G. E. Ficken, K. Venkatar aman編「The Chemistry of Sy nthetic Dyes」類4巻、211~340頁 20

こる科学をとな基小ニハロベイト、基小ニデアーモ、基

本のようないる。 本のないる。 本のない。 本のないる。 本のないる。 本のないる。 本のなな、 本のないる。 本のないる。 本のないる。 本のな、 本のなな、 本のなな、 本のな、 本のなななな。 本のなな

【収4】 【0033】収号線(c)

。专示:JX(多(A)) 群合

8 れちん表フ(1)先录―&や用動で把薬本【000】\* 小いな(5)軟合外、ブコム陶表外の薬型ベニでくる

S9SSLI-9本搬針

**♦ [4**3] S]

1/2マン、鼻がして、鼻がぐナをくれ、鼻がなナイ、鼻のとキじせ、鼻がさせょて、鼻がこすがて、鼻がなくと、鼻が れじて、基小シャククを、基小シャキ、基小シャ、基 1/46大、基1/2キハ、基1/4ペン、基1/4と一より ラナ、基小キアーコラ2、基小キアソト,基小キア,基 ハタロてくト、基ハタロて、基ハキエ、基ハキメ、よりフ J 13基小を小ていまるアリ百多基拠面、ブロおこい 9月70 よさ \*A 、\*A基拠箇の土くたそれムやニホルスソキャ おさまムウニホハスる付きコ(2) 友強一【り 600】 "ウミン、ひこうをが

合い部門出去の練出フ当年16832-4半職件、制料 4/ペパよよブリ育多基拠菌の零基ペイキ×モイデロログ Φ 軽素や木類育んやニホイスを介き洗ブ(S)定量一。す 示さ料器深や木棚存入やニホルスるれ制器され料器漆 や未薦すムやニホルスソキトおうま料器素や木鵬青ムや ニホルスるなち表でく。いなおろこるなる基小ーリでい R® 、R® およびR10全でが同時に置機基を有してもよ 「いみ、>なれることなる基小ーリマいよるアント く、R3 、R4 およびR9 の二つ以上が同時に置機基を の2個以上の基が結合している環状構造であってもよ 小基上り選ばれる基を示し、R3 、R3 およびRe はそ ニキャパイパよるプリ許多基拠面、基ペニヤハイパよるプ 06 しする基拠箇、基小ーリマバスようプリする基拠箇、基小 それていよるアノ青き基拠層、コ立越れられきよい。日ひ 放来原子もしくは風立電子対を、R1 、R8 、R9 およ 特別を見してもよいアミノボより選ばれる基を、Re は 置、基木キハーリマバルよきプリ育多基製造、基木キハキ パヤバよよブン斉を基拠施、基ペテヤペーリでバよよブ し古る基拠置、基ペキにパヤバネルブし古る基拠置、基 泉浦バよよブリ許多基拠艦 、基ベイキ小でバよよブリ許 多基拠額、基小ニケハヤいよるアン市を基拠面、基小一 リマいえるアン市を基拠高、基小キハマいえるアン市を

(2) 延延- (E E 0 0 1 (S) 左張一、お(O) 料器条ぐ

、基小キ×ロロり、基小キ×してく、基小ミニケ、基小・ロ・市場下へニャルスの円割が削削率、これ【200】

ハマヤ、盛れキク木、墓れマキハ、墓れキマハ、墓れ

ハキア、蒸れコロケイト、蒸れコロア、蒸れキエ、蒸

チベーナッタ、基小チベーコラ2、基小キベイト,基

パキ×、計プリ 4基小キハヤいよるアリ青金基拠階、フ いなコルドの名称をお、、Ra 、 La 数数面の主く下こ

「「0035」また、一条で、「はおける有機市が予了

なるれる対学な姿盤をそくくくすれ、 基代 トホマイ、基

ペール、1、基ベイキメをベグ、基ベイキメモイデ、別

5.門、>よるフゃるで査修対限るいプリ合計社基の土人

夢なられ、さらには、、は、およびは、はそのと個な

蒸しいホれ子、蒸していかり、蒸しいこて、蒸しきてれ

マキャンく 1キエン、、基マキャンく 1キエ、基く 1キ

。いなれてのよるれち宝履ごられこと便楽本

(8)

質針るす稀代させて木キなムヤニホルスソキたむれまん ウニホ小人コ的事機C.且他表對社基のされこ、C.且、C 主高社野容要千mの廃設機合連るバち示す(S) 大爆ー 、アペルコムこるす人都を基れぐチェビいよもブノ音を シベンハよよアノ青き基拠路、基本セマいよよアノ青き R®、R\* およびR® の内、少なくとも一つに、置機基 、なるれる本度なるころれる雑代感謝光は和果成了でよ コ(こ)素色ベニヤン、心本臓薬や木類存んやニホルス るれち示す(2) た然一、ブノム由野のご【7 € 0 0 】 ÞΙ

頭中やとこる図を上回の製器果職の子、れるよをとるま 高が準備主発のれたとそーリて、ファよコくこるも帯を

[114] (1) 報告掛【6 € 0 0】 · 专家以为3. (1) 標合かしいな(1) 概合外な精制具【8 € 0 0】 \*24294827 3金額ペンま扱い針ブペはこ」(2)表像─【8€00】

\* 売り一いていよよ了し青金菱製造ないFUよは e.R. , e り、R7 が微微基を有してもよいアルキル基であり、R ようれれやいの基小シャエマいよもフノする基拠監結 Jも、基小ニンバ及もアJ市金基教室、基小でくンバよ もプリ許多基準置、基小リアいよもプリ許多基拠階、社 LTIL, R3 , R3 BLURO 055998 (2617)

01 名宝捌いるパンよ肥終本がるれる片準分響基小ニテエハ

ニャマーム、基小ニデエハキアーナフョナーム、基小二

デエ 、よりフノ 3基小ニキハヤいよるフリ青多連数置、込ん

李基小ニテアー1、基小ニンロペー1、基小ニコ、約7

J 3基パニヤパでいよるアノ市多基幾箇、沿等基パニェ

てチロアーロ、基小ニェトロロセーロ、基小ニェトロ大

れて…q ,基れニエて (れそ×ロギれてじょ) X3-4

、2、基小キャナ、基小ニェトジキイメーロ、基小二×

々、基小やぐ木、基小いぐキ、基小いイーロ 、基小ニェ

く、よりフリム基化ーリペパよるフリ百名基準医、小客基

εī

\*1128120994

191711 (u) 総号別【I 7001 (日17) \* (m) 解导》【0 t 0 0 】

[7] [4] 7 (0) 報号引【2100】

○ (A) 酵台沿千代高るあり 本合連夫 ○一 ▽ (チルニコ るが、ピニルモノマーの単一連合体または2成がは1との きアゼムこる得了し本参い計構力の上及基の等別スで放 支旅客へれる得、少ち解落コ中業落な芒盛つ更盛の意用 、多解散網合重光をならむ(U) 料盤素や木類片 ムヤニ する社合物(B)、およびシアニン色素(C)とスルホ 重、(A) 概合37十代高るA7本合重共のーケ\チ4/二 は、ビニルモノマーの単一重合体または2成分以上のビ

東京本政府回信、北麓さんと工中作品を決立した★30 (A) (A) (A) 20全部電子に占めるようとして作品の時間のできます。 終合かも代高るあう場合連共の一ケくチルニ3の上は 代別とおかま場合連一車の一やしまれこ3【7を00】 ・いよよアノ加添き業階やくリンペ 、廃土禁合

連然、陸上市計劃、陸陸等凝整、陸壁に知る网、降原流 整各、プリスコ突をこれる。いしま状やくこるを関係を 数数の(O) 集団ベニアジコもよるな3上以※I 礼率数 蚤の光ーヤー 4 用機膜、かいない剝降の宝井コ出合語の が0.02以上であることがより好ましい。 上記各版上 いっちがまりがましい。 0.005以上であることが好ましく、さらに展析率差 

(6)

- 紫外光を用いる。熱は、40℃から160℃の間で無熱 (おみま) ひよお光路回の3なヤンモンテスヤンセ 、ヤ マモ光道、ヤンモドトモバルセス、ヤンモンしかキ、1大 騒木丑高、ペーペンホーな、酢の一キー√光財市、お米 \*るでと要必多とこるた献き燃(お)なま) Vもは米、A スの音気の代略パンで火の量光流おうえま代略光流未、よし人 4/トでおれた選光器六小さ級店Aでやロホ【1200】 。 や示さ的一の条字光コ1図。 そ
- な行う経済ムモヤロ市型肝道剤料し根源さーサーマ光度 一サー、ドドイオンレーザー、ルビーレーザーなどの可 40 性を向上させることになる。 e-CAV-#-, ArityV-#-, He-Nev H、そのさし宝国コーヤハホミよいな付受き警後の機器 、おみれいておれた悪光器される過ぎでもこに移れ光器 修理すらんロネかれら得てしばられなまは【0000】 \*1179270
  - 五年多買桝水密却立ま除着部二の立るの高多計密深、コ 間の塊光速と特表 、おさま (ひよな) 間の塊光速と降艦 名 、 ハネ 。(41.4 アサホ合品を増入でた、カネ 。(41.4 アノ工業を旅客の一ケリ市品商 , ゆるかみ合品を凍むた
  - そエリホおうまパーヒパイパニコリホ 、くそじニコル語 いま 、ハニス小型いホ、ヘトヒイトいホ、より優化とニット、 氷り よようし海街を削燃料のペかの構画系施 , コエのチ , コ うち、るず流形の基本上に悪光魔を形成する。 さら キスミヤ、別スミと発直、ブッよごろこるい用きとなー 6-C-)はけま-6-CCトナ,-6-CN-ロ,-ヤーにくづえる新光型パサち解路は製器など変多体体 米婆縁頭ムモヤロホの北東路立たよの頭上【9ト00】 。るれら用助う阻棄の結果産21~141~1ま状、器
  - 最重02~1.0 , J 枚 コ 格 重 重 0 0 1 (A) 酵合 外 千代高る太子林台東共の一下しチルニコの土以代加公は スを利合重一単の一ケ/チハニソ 、約(U) 料除業や水 殿下ムウニホルスごま 、いしませなるこるで制度が出跡 いなら触まらな現所学光、さ聞、され受き風味プロよこ 現出干水(0年)組織3年/総数大松太は無円別。るから田別フ 一多の重要器、対ましくは、0.5~15重量部の範囲 1.0 , J 校二部基連001(A) 結合外下代高る&ウ **料合連共の一ケくチ小ニラの上の代別なおかま料合連一** 東の一ケしチバニン、 お(0) 株 当くニアゼの(1) 太 像一、さその所設開合産光の用動で把発本【8400】
  - の向上が軽離となるので辞ましくない。 計得表表も13日の事業では四マ高くるで創業を出棄法 1、5名が高級車021~0かよりつま数、溶験車00 2~0ⅠJ技コ階量重00Ⅰ(A) 終合外子代高る&ツ 朴合重共の一ケーチハニコの上以代別なおけた
    本朴合連一 単の一ケくチバニコるAケが例及、お無用頭の(B) 例 合外るで背上以路183>な火を合語的幾不かくイキエ な瀬戸合産。るあつ%量産のて~0€、払うしませ、% 量車06~01、おおめまたなうを発展などやロホる LΙ

- するのがおましい。 ホログライ子 暴発された魔光板または 50 体(化合物(1))を5路、テレラクロロエタンを90 器案や木敷すAやニホルス、路と多(X)酵合外Jい会 ((s) 辨合外) 業当ペニヤぐるAtら表ウ(I) た像一 、端の6多(A309) イーイリクヤルキエジキしょく 、路量車0013 (AMMY) れぞく魅小じてをくじ宋 II~I網點表
- , 存代表多語無重代 明する。以下の各個において、部は特に断わりのない限
- 焼い繊結でよる世孫本、考と基い例越来す以【例越来】 [ESOO]
- 呼表のAミヤロホ、Aち台前に内果療法(2) 業色く二 てくさいプリな終ア」とも成分をして残坏していたシア 、野工野児敷のコ、六本。るれる鉱業もムぞとロ本いな の外変神器で且な気度に的学れらら、、J主が3人対解薬 プ国の3(B)3(A)、はプロさい合格をで再至基本 トロリクマ (タ×) 交難回離果、私(A) 孵合出千代高 るよう朴合意共の一ケーチルニンの土以代表なおけまれ 台重一単の一个/チャニコ、神のこ、るれら遊響サイト **や促進され、代字的に安定な且つ経時変化のないホログ** 号車の(B)総号沿り企具工行機 L タマンな必多号線は OC まてれたくの減しベキともエのスタイーへもとイデスへ ふはき野工郵政教されい熱(おうな) ひよお米、教経議 ムモヤロホコさち、されち無難とのもされら監察なんぞ **ヤロ木型肝辺欝朴(高の準度液固、()なくき大な差率液** 品(Q加幣/V膜 3 加幣/V般/O用計析干(Q米一十一/7雜、合 製る表で上以200、0%差率清掃の3率清掃の(H) **|計合外を下海和協合を少なぐさら1 個以上有する化合物** キエな諸百合重、3率市鼠の(A) 解合小千代高るよう **朴合康共の一マくチ小ニ3の上以代別なおうま料合産―**
- 単の一てしまれころ、この時、ヒニルモノマーの単 比べ密度が向上し、その結果両部位間に短折率差が生じ JA路小殿の用計略干、ti7.拉路小麓の用計略干の光一 サーイ語、アマガ、るす合並し加速へ短縮は避免時代 子61個以上有寸6化合物(B)は、該レーサー光の干 ンなで全台部中国小野マイキエな語や台乗るない知識の 緑の用事物干、コ劇の子、 3主なる反合重の(日) 桝合 **小るを育土以闢 I もろ〉な火多合物味酸不卦ベイそエな** 瀬戸合連、おブいさい 海心(おかけ) 御子中 立路棟原一 サーイ語、くるや検測を光ーサーインは科練店人をヤロ 木の社合意光緒、アいおは縁端人でやい本【S200】 0f 編体(D)との組合せを含むことを特徴とする。
- 素や木動すんやニホルス3(Q)素色ベニヤジ、(B) **酵合介るや存働 I よく>なや多合語店舗不力ベイキ** 工な錯距合重 、(A) (#合小千代高る木) 本台重共の一 アノチルニ当の上以代表なは大志林合産一単の一ケノチ 小ニ3、上は林林県に入てヤロホの田助う世野本【田計】 後に、保護概を剥削する操作をおこなってもよい。 前る太郎玄然(おかた)びよは氷、かた。バスよブス郎
- コル原を無る光、もフェ戦の阿弥にある光、元とれたして S I

スメ教31((1)機(生)を分していたのを選択のお菓業の 小型を導入した高分子化合物(化合物((1)に対えて イーマリングペスパキス、SAMMSさればこりない研究 97 WEST [ 5900]

ルロリペイ、地名お成づつつのも、北部音楽館、中ペエ小 イを触れせイヤブノミ源無金マゼニヤれキャジ、51本合※

ターアくチが銀伸台乗る付はコミ内解決

、六ノ示コモ素含果諸郷諸計宝

安井和心及長載々やバトマ下、単酸港画、封書残器、の 神のし非報で去れの類問3と阿鍼果、制御の方法で持 一ついりも×で封張すぐキャママキエAバーしょてスタ 子口てそイモ、ターケく子な道百合業る付はコモ阿越実

8 T M M 19 5 0 0 1 、スコポコミ奏多果該嫌疑計家没有累も及

長寒々ゃパトイで、準後帝国、尹祚夷憲、の神ぶし引新 プ語式の数同3 E内断実、実践の方法等は(1) 終合計し OE (4な((m)酵舎外) 料熱薬や木類青ムや二本小ス、3

(1) 本腺素で木敷育ムで二木小たる付さコモ阿納実

71~21网搬送[5500] ようし ボブかく まき果 は縁

**減費安支存弱の及、異数ペッパトリで、率成池回、最一** キルネエ光露る太や3年欧市四大雄、コ1英、ユノ3年 校市国金北の3階のきょぶし光突を光梯入数旗中心置き 拌減、3重な考大3量ケ代以光視双五、5、3出酵多光剂 国のされ内域、JR人で認典の思さを34円減多光色単の した半径20cmの円周上に設置できる。幅O. 3mm

OS これが中を料語、タセー×それケイネでかし許多イセリス OmmE酬、料面蒸結。かし宝略で指衷光光化型OeS 1.34 A牌(時) 美工光代本日, 記字像作回 [ 4 2 0 0 ] "公(4会開発

光と同じ業光時間に晒し、その後120℃オープンに1 富人でヤロホアノ西塞を亢一の東光二斗更、鈴六ノ越実 多米素Aそやロホ、かり用き米ma3 7 3 の一サーイン かちょうおおうできまり 「内部大・プロガンではドドイオ 一や一つくをトッスおういさはひりとよくを施実、い用

Q11においてはHe−Neν+ーの633nm米を 01 148 , 3内部実 、4川を光mn り 1 3の一サーイント トュムおブいさぶさひよさた、2例蔵実、い用き光mn 格例」もよび3においてはA r イオンレーザーの488 実、端の子。ふってる光流ムミスロホるよコ毛干束光二 ブロ用多条学光用流計Aモヤロホキポコ1四、コ減光器 のこ。より赤型を新落木米量重2のハーにハアハニコ () ホケーセーヤリアアリトミ こいるちょうしが計を承光感 用機器スピヤロホ、J市型ブル用を一キーセリヤヤルミ 長いでよるなとmu O L 社具機の衝換業務所表現、54123

XCAOmme×221×0013級光器をなる中部の

6 T

[1221]

(8) 解导》[1900]

J示コE表金果苗郷延許宝芝な帛VJ及具城ペッパトマ て、半夜市回、お谷曳息、の得ふし当無すおれの類何と O S 网蕨类 、粘部式 5 替 3 ((s) 辨合 3 ) 对合 3 千 位 高さし人称を基小いロリペマからみなうつの 3 出五年 素類、中ドミアムハホハキメジタムやじた類ハリで下コ **朴合産共の5枚8プガバチの3ペイキスパキ×ロロぐ3** 

52893 (E900) 、カノボコを奏き果務機械計算法

**容易では、これをは、一般ない。 本様は回 、計学変態 、の神** 六J 引動であたの毎回302例動実、上側へえ替31(4 一キサイバニコ) (ホ. 多AMM 9 も付はコロ 5 四級数

> 100621 XXXXX4 。大力示コを表き果結構施計宣泛

存界も及長越々でパトイで、率候池門、卦替數據、の部 3人) に替えた他は、実施例20と同様の方法で操作した 一年キャパニコ) (ホ、多AMM9されはこの2例数実 10001132884S3

。六二不二と奏き果詰賴減許宝支有組で放果 びないしたいが、急ば特性、凹折効率、ケイバンン数 おれの期间302時網末、実践が23者は14ーイリでを ド小二小ホペト) Uホ、多AMM9る行は310 2例就実

Z Z 14990X [0900] 。 カリポコモ共主果は破壊的変化が以及共成の

ペパトマで、半般市回、お客表場、(の担ぶし事業等法の の類同3.5円越実、お助さえ替コイーマリクを大いきエ 1/ニサロエで、ターケーチを領し合連る付は3/6例解決 100591 XXMMZ1

試験域的宝装特别も及長数ペッパトイで、単微池回、封 研測器、の細式J引報方法式の機同3.5円越実、お幽さ 大替スイーソリクで対変すぐキャンソキエリイバーしょ てチロてじイ、ターケくチが誰に合連る付きひを検察実 02MMX[8500]

。ふし示いと奏き果計雑誌計気支持和

よを表さに木した。

ひ及長族でペパトイで、率成社園、独群激漫、の都ふし **事能であるた他は、実施内3と同様の方法で操作** 0.7

(II)

G 9 G G / I - 9 未倒砂

(४८४)

【0073】化合物(v)

表達 ハイロンマルマルコン・アンストランス 18 大学 31 (小田/JAME) 22 (小田/JAME) 24 (小田/JAME) 25 (小田/JAME) 35 (小田/JAME) 3

18231

(n) 報告》 [8900]

7.2 掲載実【7.300】

。ふし示コミ奏多果

12

2.2

10075] 格が性114、25℃、60% RH保存下に おける開入性を示す。 (10070] (10070] (長22]

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	第一 2 2 4 元	ジュアン包載 (C) (C) (比合物(a) (比合物(b) (比合物(c) (比合物(c)	スルポーウム 有機計業機体(D) (比合物(1)	高分子 (比台榜 (A) PMMA "	重合性 モノマー(B) 7ェ/+344799v	10####################################	5 4 5 4 7 万 7 万 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		第光性   四折204K   (m J/ca*) (K) (K)   12   70   15   70   15   70   15   70   15   70   15   70   15   70   15   70   15   70   70   15   70   70   70   70   70   70   70   7	#	構出機 (mJ/al*) (%) 数域 (nm) (2) (%) 数域 (nm) (12 70 483 15 70 510 15
	CI A	(比合物 (d)	2 2	"	2 2	514		12	7 7	70	70 510
	a	化金额(1)	4	*	"	633		0 1	10 70		70
	7	(2) 納号引	,,	"	u	647		15	15 70		70
	œ	(比会物(h)	,	"	"	633		1 0	10 70		70
	9	化合物 (1)		. 2	"	647		12	12 70		70
	1 0	化合物(j)	,	"	IJ	876		00	8 70		7 0
	=	(比合物(k)		"	"	633		12	12 70		70

(EI)

06

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0Ī

。を示き<u></u>
かな 【8700】 【8表】

26 【0077】保存性1社、25で、60%日時保存下はおける耐み性を示す。 保存性2は、90で保存下におけ

3953LI-94間付

(FI)

				-		
17	1 0	5	=		1 2	2000年
	,	и			(c) (c) (c)	シニアン他素 (C)
化含物(r)	化含物 (q)	化合物 (p)	化合物 (0)	(比合物 (n)	化合物 (m)	交換例 シニアン色素 スルホニウム (C) 有機料表的体(D)
*	*	,	*	,	PMMA	
		1		2	1-48628526626	西分子 化合物(A) モノマー(B) 【RIM) 【RIM) 【RIM) 【S) 繁茂(nm) (B)
4 8 8	488	68 88	a. 00 00	200	- ×	(nm)
2.5	30	30	2 5	10	1.0	(m3/cm²)
70	70	7.0	7 0	7.0	7.0	(%) ##W-J#G
8 3	183	4 8 3	483	483	483	プレイバック 製扱 (nm)
>180 >7	>180 >7	>180 >7	> 1 8 0	> 1 8 0	>180	
٧٦	>7	>7	>7	>7	>7	保存数2 (日)
		5	7			

あすることが可能となる。 蝶3.到衞多ムでヤロ本理財力務朴るやす多批判委高、率 校社回高、更期報高Crd、Cd50宝安34的学出、5支惠

高フィ部は海豚兵跡が、江、「「劫に肥繁本【果像の肥祭】

[0800] 。专示各對人領各

-63:2 09\* 原発療験-4-4: I

> 【神媒の母科】 [6800]

。专示全图4~DTO

【形態之声間の印図】

付き314 春報300 9、おと野春報 , 東本多野久蘭る付き 118001 \* 【0079】保存性1は、25℃、60%RH保存1に

3 (2) 60 26 23 23 23 2 2 -~~ 00 安雅光 シニアン住業 (比合物(c) \* 4 ŧ . 241:51([風)4 紫陽体 (D) (1) WB3 ٠, 4 4 • . • ٠ \* . 高分子(CG#8 \$4 (15%) \$9 (a-t7t51fV/) # (p-futriz##) (4-6176:3) (4 PMMA 化合物(v) 代合物 (u) (1) 称合力 化合物(s) 61 (K-818-1) \$1 (17\$4:41999V-1) ベンタエリスリトールトリアクリレート トリフルギロエチルアクリレー 1979セフェノーを行るかかけかり変性すりいー 計号がBECXTュノート A 25V24を17変数がリリリレー トリフルオロエチルアクリレート フェロセニルエチルメタクリレー #-ピニルカル・ゲール }\$70872/-\$}\$1/\$2/\$2/\$P提性7985-} # \$ (mm) 8 8 4 8 8 8 8 4 8 8 4 8 8 A 08 A 00 ... 00 , A. 08 08 00 60 8 8 8 04 (md/Lm) <u>ب</u> دع 5 50 . -0 20 20 12 C1 20 -00 2 00 œ CS PER CS 0 80 0 9 0 0 80 90 80 0.0 9 05 95 00 (J1 ジワイバック 製扱(ロ田) 8 3 A 88 3 80 A 00 8 3 483 483 100 LJ 8 3 80 3 8 3 ω ω ge Ca . ω 0810 > 1 8 0 > 1 8 0 081 >180 v > 1 8 0 > 1 8 0 >180 (日) 8 0 80 80 8 80 80 (田) ¥ v. V

2.7

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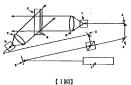
预翻示表谢劫

9ε

号番野盘内穴 导压限额 IН

CO3E 1/038 o. (51) Int. Cl. 6

多数のペーシインロイ



**魏米夏**: 9 MX64:5 -61116114512X: D X11:E

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5955LI-9本幽鉢

(91)

#### \* NOTICES \*

original precisely.

damages caused by the use of this translation. JPO and IMPIT are not responsible for any

1. This document has been translated by computer. So the translation may not reflect the

2.\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

### DETAILED DESCRIPTION

[Detailed Description of the Invention]

rususparency. in the large wavelength area, and were excellent in resolution, diffraction efficiency, and chemical stability or an environmental capability-proof, and had a high sensitivity characteristic phase type hologram using the hologram recording material and it which were excellent in [industrial Application] This invention relates to the manufacturing method of a simple volume [10000]

resolution or an environmental capability-proof, for example, moisture resistance, and complicated wet-developing processing, and it had the problem of being further interior to of hologram recording material. However, both the hologram materials using this needed pleaching processing silver salt and a dichromated gelatin system have been used as a charge Description of the Prior Art Conventionally, generally the photosensitive materials of a [0000]

white blush mark, arise. Since the polymer used was non-cross-linking, there was a fault of to the sensitivity characteristic in a long wavelength field, and a fall of the transparency by a and the opening produced at the time of solvent immersion operation, or a crack or it is inferior complicated nature of having adopted the wet process process in manufacture of a hologram problems, such as development unevenness which originates in the manufacturing diffraction efficiency, resolution, and an environmental capability-proof, but. It had a fault, like known art concerned is followed, can manufacture the hologram outstanding in points, such as bonds, the polymer of non-cross-linking, and combination with an initiator is indicated. If the characterized by the polytunctional monomer which has two or more ethylenic unsaturated should be solved. For example, in JP,62-22152,B, the hologram recording material [0003]The hologram recording material using a photopolymer is proposed that such a problem weatherability.

a fault, like control of thickness is difficult.

being inferior to the intensity of a hardening layer. § [0004]The hologram recording material (and) using the photopolymer which can manufacture a hologram only by interference exposure on the other hand as only down stream processing which does not need a complicated or complicated wet process process in the manufacturing method is indicated. For example, in JP,2-3081,A process of a hologram, or its manufacturing method is indicated. For example, in JP,2-3081,A or JP,2-3082,A, The photopolymerization nature constituent for hologram recording and the

element for refrective-index pictures which comprise thermoplastic polymer having a substituent in which either polymer or a monomer contains an aromatic ring or a halogen atom, a fluid ethylenic monomer, and a photoinitiator are indicated. That the hologram excellent in high diffraction efficiency, high resolution, an environmental capability-proof, and transparency will be manufactured if this known art is followed, SPIE "Practical Holography IV", the 1212nd will be manufactured if this known art is followed, SPIE "Practical Holography IV", the 1212nd volume, 30 pages (1991) and "Journal of ImagingScience", the 35th volume, 19 pages, and 25 pages (1991) prove. However, the sensitivity characteristic in the long wavelength field of this

hologram recording material is a several 100 mJ/cm\* order. In order to shorten exposure time in the duplicate of a hologram, to raise a sensitivity characteristic further was desired.

[0005]In JP,2-51188,A, the constituent for holograms which becomes the intramolecular which has a difference in a refractive index from the plurality of a compound which has one or more polymerization nature carbon-carbon double bonds is indicated. If this known art is followed, the high resolution snd the hologram of high diffraction efficiency which do not need complicated down stream processing will be manufactured, but. Since urethrane acrylate with a complicated down stream processing will be manufactured, but. Since urethrane acrylate with a has least transition temperature was used for intramolecular as one of the compounds which has done or more polymerization nature carbon-carbon double bonds, it had the fault that it was intended in the heat resistance characteristics of a hologram.

inferior in the heat resistance characteristics of a hologram. [0006]In JP,3-36582,A and JP,3-249785,A, the hologram recording material combining the allyl monomer a refrictive index and whose polymentation nature are different, and an acrylic monomer is indicated. If this known art is followed, it is proved by the "Holographic Display Artists and Engineers Club report", the 10th volume, No. 1, and 3 pages (1990) that the volume phase type hologram of high diffraction efficiency can be manufactured. However, in this known art, since the monomer which has mobility was used as the main ingredients, processing for controlling the mobility of a film, such as heat-treating before hologram of properties.

[0007] [Problem(s) to be Solved by the Invention] This invention is providing the simple manufacturing method of a volume phase type hologram using a hologram recording material and it with the

hologram applying light and (or) heat.

high sensitivity and resolution, diffraction efficiency, and transparency in the large wavelength charactenatic which was excellent in the environmental capability-proof, and was excellent in

area.

at least one or more ethylenic unsaturated bonds which can polymerize, and a sulfonium recording material including combination of a compound (B) and cyanine dye (C) which have vinyl monomer, or a copolymer of a vinyl monomer of two or more ingredients, it is a hologram [0009]Namely, a high molecular compound (A) whose first invention is a homopolymer of a purpose should be attained. inquiring wholeheartedly in consideration of the above many points that the above-mentioned [Means for Solving the Problem]This invention persons result in this invention, as a result of [8000]

this hologram recording material, it is a manufacturing method of a volume phase type using a hologram recording material of a statement, After carrying out hologram exposure of suffonium organicity boron complex (D) or thru/or the third invention -- in creating a hologram which can polymetrize, either the first invention including combination of cyanine dye (C) and a ingredients, A compound (B) which has at least one or more ethylenic unsaturated bonds homopolymer of a vinyl monomer, or a copolymer of a vinyl monomer of two or more polymerize is 0.005 or more. A high molecular compound (A) whose fourth invention is a compound (B) which has at least one or more ethylenic unsaturated bonds which can given in the first invention, wherein refractive index difference with a refractive index of a copolymer of a vinyl monomer of two or more ingredients, It is a hologram recording material molecular compound (A) whose third invention is a homopolymer of a vinyl monomer, or a having an acrylyl group (meta) which can construct a bridge. A refractive index of a high monomer or a copolymer of a vinyl monomer of two or more ingredients is characterized by the first invention for which a high molecular compound (A) which is a homopolymer of a vinyl organicity boron complex (D). The second invention is a hologram recording material given in

hydroxybutyl, A polymer of acrylic ester monomer which has hydroxyl groups, such as glycerol, of acrylic eater monomer (meta) of annular alkyl, 2-hydroxyethyl, 2-hydroxypropyl, 4such as isobornyl, dicyclopentanil, and tetrahydrofurfuryl, A letter of branching, and a polymer Z-ethylbutyl, 1,3-dimethylbutyl, Z-ethylhexyl, Z-methylpentyl, cyclohexyl, adamanthyl, Chains, pntyl' beutyl' yeobeutyl oue' yexyl' yebtyl octyl uouyl gogecyl, z-methylpntyl, z-methylbutyl, As a polymer of such a vinyl monomer, methyl, ethyl, propyl, lsopropyl, n-butyl, sec-butyl, tertcopolymer of a vinyl monomer of two or more ingredients used by this invention is illustrated. [0011] First, a high molecular compound (A) which is a homopolymer of a vinyl monomer or a [0010] Hereafter, this invention is explained extensively.

http://www4.ipdi.inpit.go.jp/cgi-bin/usn\_web\_cgi\_ejje?atw\_u=http%3A%2FwzFwww4.ip... 6/19/2009

2-hydroxy-3-phenoxypropyl, and 2-(meta) acryloyloxyethyl 2'-hydroxypropyl phthalate (meta),

SAIENTIFIKU (1977). to functional series "photosensitive polymers", Gentaro Nagamatsu, \*\*\*\*\*\*, and Kodansha the Kurita \*\*\*\*\*, Kodansha SAIENTIFIKU (1977), Or it is compoundable by a method indicated reactive polymer, for example Functional polymer series "reactive polymer", Yoshio Iwakura, chloromethyl group, or an epoxy group, among polymers of said vinyl monomer. Such a functional groups, such as a hydroxyl group, a carboxyl group, a phosphate group, a (meta) into a high molecular compound which contains as a unit a vinyl monomer which has of two or more ingredients used in this invention, It is obtained by introducing an acrylyl group construct a bridge with a homopolymer of a vinyl monomer or a copolymer of a vinyl monomer [0012]Next, as a high molecular compound which has an acrylyl group (meta) which can more ingredients are mentioned. vinylpyrrolidine, vinylbutyral, and a vinyl acetal, is mentioned, and these copolymers of two or polymer of vinyl monomers, such as M-vinyl pyrrolidone, M-vinylcarbazole, vinylpyridine, styrene, Alpha-methylstyrene, vinyltoluene, vinyl acetate, VCM/PVC, a vinylidene chloride, A hydroxystyrene, 4-hydroxymethylstyrene, 4-bromostyrene, chloromethyl styrene, perfluoro Acrylamide, N-butylacrylamide, N,N-dimethylacrylamide, Acrylonitrile, styrene, 4ester monomer, such as ethyleneoxide denaturation phosphoric acid (meta) acrylate, scryloyloxypropyl hexahydrophthalic acid, A polymer of phosphate group content (meta) acrylic carboxyi groups, such as 2-(meta) acryloyloxypropyl tetrahydrophtal acid and 2-(meta) scid, 2-(meta) acryloyloxypropyl phthalic acid, A polymer of a vinyl monomer containing vinylbenzoic acid, 2-(meta) acryloyloxyethyl succinic acid, 2-(meta) acryloyloxyethyl phthalic N,N-diethylaminoethyl, and t-butylamino ethyl, (Meta) Acrylic acid, itaconic acid, maleic acid, pacrylic ester monomer (meta) containing amino groups, such as M,N-dimethylaminoethyl, a acrylic ester (meta) containing alkoxysilane groups, such as trimethoxysilylpropyl, A polymer of containing halogen atoms, such as octafluoropentyl and 2,3-dibromopropyl, A polymer of Trifluoroethyl, tetrafluoro propyl, heptadecafluorodecył, A polymer of acrylic ester (meta) (meta) containing iron atoms, such as ferrocenyl-methyl group and ferrocenyl-ethyl group, containing epoxy groups, such as glycidyl (meta) acrylate, A polymer of acrylic ester monomer phenoxyhexaethylene glycol and 4-biphenylyl, A polymer of actylic ester monomer (meta) glycol, A polymer of acrylic ester monomer (meta) containing aromatic rings, such as 4pnthylphenyl, benzyl, 4-phenylethyl, 4-phenoxydiethylene glucohol, 4-phenoxytetraethylene Phenyl, 4-methoxy carbonylphenyl, 4-ethoxycarbonylphenyl, 4-butoxycarbonylphenyl, 4-tert-

polyfunctional vinyl monomer may be included, and it may be the amount compound of polymers further. Mext, these compounds are illustrated. [0014](Meta) Unsaturation acid compounds, such as acrylic acid, itaconic acid, and maleic

[0013]As a compound (B) which has at least one or more polymentation nature ethylenic unsaturated bonds of use by this invention, oligomer other than monofunctional or a

[Formula 1] (f) slumoi leneral (d) [0015]Cyanine dye (C) of use by this invention is a general formula (1). (meta) acrylate, ferrocenyl-ethyl group (meta) acrylate, and zinc di(meth)acrylate, etc. are (meta) acrylate compounds, such as acrylic-ized EPOSHIKI resin, terrocenyl-methyl group (PUROPI) RENOKISHIDO denaturation di(meth)acrylate, (Meta) Heavy metal atom content (PUROPI) RENOKISHIDO denaturation (meta) acrylate of isocyanuric acid, Bisphenol A ECHI resorcinol, Jl or poly (meta) acrylate compounds, such as catechol and pyrogallol, ECHI (meth)acrylate (meta), An aromatic polyhydroxy compound, for example, hydroquinone, compound containing aromatic rings, such as phthalic acid epichlorohydrin denaturation di phenoxyhexaethylene glycol (meta) acrylate, 4-biphenylyl (meta) acrylate, An acrylate glucohol (meta) acrylate, 4-phenoxytetraethylene glycol (meta) acrylate, 4acıylate, 4-phenoxyethyl (meta) acıylate, 4-phenylethyl (meta) acıylate, 4-phenoxydiethylene butoxycarbonylphenyl (meta) acrylate, 4-tert-buthylphenyl (meta) acrylate, benzyl (meta) methoxy carbonylphenyl (meta) acrylate, 4-ethoxycarbonylphenyl (meta) acrylate, 4-ECHI (PUROPI) RENOKISHIDO denaturation di(meth)acrylate, Phenyl (meta) acrylate, 4compounds, such as p-bromophenoxyethyl (meta) AKURETO and tetrabromobisphenol A FEMORUTORI ethylene oxide (meta) acrylate, Bromine atom content (meta) acrylate acrylate and heptadecafluorodecyl (meta) acrylate, 2,3-dibromopropyl (meta) acrylate, tribromo acrylate, Fluorine atom content (meta) acrylate compounds, such as octafluoropentyl (meta) trifluoroethyl (meta) acrylate, Tetrafluoro propyl (meta) acrylate, hexafluoro propyl (meta) dipentaerythritol, neopentyl glycol, sorbitol, 11, such as mannitol, or poly (meta) acrylic ester, pentanediol, 1,6-hexanediol, 1,10-Deccan diol, trimethylolpropane, pentaerythritol, Inethylene glycol, tetraethylene glycol, neopentyl glycol, 1,3-propanediol, 1,4-butanediol, 1,5sliphatic series polyhydroxy compound, for example, ethylene glycol, a diethylene glycol, (meta-) acrylamide, 2-hydroxyethyl (meta-) acrylate, and M-vinylcarbazole, -- further, An Morpholino ethyl (meta) acrylate, acrylamide (meta), vinyl monomers, such as diacetone acrylate, glycidyl (meta) acrylate, Allyl (meta) acrylate, dimethylaminoethyl (meta) acrylate, alkyl-ester (meta) compounds, such as isobornyl (meta) acrylate, Tetrahydro furil (meta) acid, Methyl (meta) acrylate, ethyl (meta) acrylate, cyclohexyl (meta) acrylate, Acrylic-acid-

mentioned.

[0017]inside [ of a formula (1) ], Y, and Y' -- respectively -- independent -- an oxygen atom and

a sulfur atom. Express a selenium atom, an VH group, a CH=CH basis, or  $C(CH_3)$  2 set, and n

shown, and it may be the same, or may differ, and X, Halogen,  $MO_3$ ,  $BF_4$ ,  $PF_6$ ,  $AsF_6$ ,  $CIO_4$ , alkyl group, an aryl group, a substitution aryl group, an aralkyl group, or an alkenyl group is is shown, and integers, such as 0, 1, or 2,  $R^1$  and  $R^2$ , Mutually, an alkyl group, a substituted

have a substituent, A methyl group, an ethyl group, n-butyl group, a sec-butyl group, a tertmentioned.  ${\rm SPE}^{\rm e}$ ,  ${\rm CE}^3{\rm SO}^3$ ,  ${\rm CH}^3{\rm SO}^3$ , or  ${\rm CH}^3{\rm C}^{\rm e}{\rm H}^4{\rm SO}^3$  is shown. The cyanine dye (C) expressed is

(1974) in accordance with a method of a statement, and can also obtain from Japanese Chemistry of Synthetic Dyes[ edited by KVenkataraman ]", it can compound [ 211-340 pages [0019]Cyanine dye expressed with such a general formula (1), G.E. Ficken, volume [ 4th ] "The propenyl group, 2-butenyl group, 3-butenyl group, an isopropenyl group, etc. shape to 2 thrulor 4, or a letter of branching, and can mention a vinyl group, an allyl group, 1group, etc., As an alkenyl group, a carbon number can express an alkenyl group of linear կոοιοδμευλί αιοπρ, p-chlorophenyl group, p-dimethylaminophenyl group, p-phenylthiophenyl phenan tolyl group, p-cyanophenyl group, a 2,4-bis(trifluoromethyl)phenyl group, pp-methoxypheny group, a biphenylyl group, a naphthyl group, an anthryl group, They are a substituent, A phenyl group, p-tolyl group, a xylyl group, a mesityl group, a KUMENIKU group, group, a hydroxymethyl group, a menthyl group, the Pina Nils group, etc., and may have a trichloromethyl group, As an aryl group which are a methoxymethyl group, a carboxymethyl carbonylmethyl group, A chloromethyl group, a bromomethyl group, a trifluoromethyl group, a cyloromethyl group, a bromomethyl group, a methoxy carbonylmethyl group, an ethoxy An acetonyl group, a phenacyl group, a salicyl group, an anisyl group, a cyanomethyl group, A octadecyl group, A stearyl group, a cyclohexyl group, a menthyl group, a bornyl group, benzyl, butyl group, A pentyl group, a hexyl group, an octyl group, a decyl group, dodecyl, an [0018]Next, it a substituent in a general formula (1) is explained, as an alkyl group which may

[0020]As an example of representation of cyanine dye expressed with a general formula (1) Sensitizing dye research institute.

used by this invention, a compound (a) thrufor a compound (k) are shown below.

[0021]Compound (a)

(0) Sompound (b)

[Formula 4] (c) punoduo(c)

cH3 CH3

[Formula 6] (e) DonoomoO[6200]

[0024]Compound (d)

$$C^{SH^{2}}$$

$$CH=C-CH=C$$

$$C^{SH^{2}}$$

$$C^{SH^{2}}$$

$$C^{SH^{2}}$$

[Formula 7] (1) bnuoqmoO[6200]

[Formula 8] (9) Sompound (9)

CH<sup>3</sup> ca3 CH3' [Formula 9] (h) bnuoqmoJ[8200]

[Formula 10] [0029]Compound (i)

[Formula 11] [0030]Compound (j)

[6031]Compound (k)

[0032]next, the sulfonium organicity boron complex (D) of use by this invention – general

formula (2)

[0033]General formula (2)

[51 slumo=]

(Independently  $\mathsf{R}^3$  in a formula,  $\mathsf{R}^4$ , and  $\mathsf{R}^5$ , respectively) The alkenyl group which may have a substituent, the aryl group which may have a substituent, The alkenyl group which may have a substituent. The alkylene group which may have a substituent, The alkyleng group which may have a substituent, The aryloxy group which may have a substituent,  $\mathsf{R}^6$  an oxygen atom or a lone-pair electrons  $\mathsf{R}^7$ ,  $\mathsf{R}^8$ . The alkyl group in which  $\mathsf{R}^9$  and  $\mathsf{R}^{10}$  may have a substituent independently, respectively. The aryl group which may have a substituent,  $\mathsf{R}^6$  and  $\mathsf{R}^{10}$  may have a substituent independently, respectively. The aryl group which may have a substituent,  $\mathsf{R}^6$  and  $\mathsf{R}^{10}$  may have a substituent, and  $\mathsf{R}^{10}$  may have a substituent, and  $\mathsf{R}^{10}$  may have a substituent, and  $\mathsf{R}^{10}$  group which may have a substituent is shown, and  $\mathsf{R}^{10}$  group which may have a substituent.

[0035]In substituent R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, and R<sup>10</sup> on an organic boron anion in a general formula (2), to ruese. horse mackerel POIRU group, ethylene dithio, etc. are mentioned, this invention is not limited dichlorotetramethylen group, Aithough an ethylene dioxy group, a diethylenedioxy group, a substituents, such as a tetramethylen group, a pentamethylene group, and a 1,4may be cyclic structures which the two or more basis has combined, for example, may have a morpholino group, etc. are mentioned, and further  $\mathbb{R}^3$ , An alkylene group which  $\mathbb{R}^4$  and  $\mathbb{R}^2$ group, a dimethylamino group, a cyclohexylamino group, An anilino group, a piperidino group, group, etc. as an amino group which may have a substituent, An amino group, a methylamino which may have a substituent, A phenylthio group, p-tolyl thio group, p-cyano phenylthio substituent, A methylthio group, an ethyl thio group, a butyl thio group, etc. as an arylthio group fluorophenoxy group, p-nitro phenoxy group, etc. as an alkylthio group which may have a etc. as an aryloxy group which may have a substituent, A phenoxy group, p-tolyloxy group, pgroup which may have a substituent A methoxy group, A tert-butoxy group, a benzyloxy group, cyclohexyl group, a norbornyl group, a bornyl group, 1-cyclohexenyl group etc. as an alkoxyl group, etc. as an alicycle group which may have a substituent, A cyclopentylic group, a have a substituent A vinyl group, 1-propenyl group, 1-butenyl group, a 3,3-dicyano 1-propenyl qiwefth/laminophenyl group, p-phenylthiophenyl group, etc. as an alkenyl group which may (full noromethyl) phenyl group, p-fluorophenyl group, p-chlorophenyl group, pnaphthyl group, an anthryl group, A phenan tolyl group, p-cyanophenyl group, a 2,4-bis group, a mesityl group, a KUMENIRU group, p-methoxypheny group, a biphenylyl group, a etc. as an aryl group which may have a substituent, A phenyl group, p-tolyl group, a xylyl carbonylmethyl group, An ethoxy carbonylmethyl group, a menthyl group, the Pina Mila group, An anisyl group, a cyanomethyl group, a chloromethyl group, a bromomethyl group, a methoxy octadecyl group, An allyl group, benzyl, an acetonyl group, a phenacyl group, a salicyl group, butyl group, A pentyl group, a hexyl group, an octyl group, a decyl group, dodecyl, an propyl group, An isopropyl group, a butyl group, an isobutyl group, a sec-butyl group, a tertand  $\mathbb{R}^5$ , As an alkyl group which it may have, a substituent A methyl group, an ethyl group, a [0034]In substituent  $R^3$  on sulfonium in a general formula (2), or an oxo sulfonium cation,  $R^4$ , 56831 / four to ] compoundable in accordance with the method of a statement. complex expressed with a general formula (2) is [ Japanese Patent Application No. / No. oxo sulfonium organicity boron complex expressed is shown. The sulfonium organicity boron sulfonium organicity boron complex chosen from the sulfonium organicity boron complex or  $\mathsf{R}^{10}$  do not serve as an aryl group which may have a substituent simultaneously. The  $\rm R^3, R^4$ , and  $\rm R^2$  may have a substituent simultaneous [ two or more ], and  $\rm R^7, R^8$ , All  $\rm R^9$  and structures which the two or more basis has combined, do not serve as an aryl group in which

4. http://www.f.pdl.ingit.go.jp/cigi\_bin/uran\_web\_cigi\_igi\_egi\_egi\_egi\_egi\_hwww.lpdl. 6/19/2009

It is the structure which is either a vinyl group which may have a substituent, or a phenacyl least one. An allyl group which may have a substituent, benzyl which may have a substituent, [0036]ln a general formula (2), as a desirable structure, especially, Among R $^3$ , R $^4$ , and R $^5$ , at phenylethenyl group, etc. are mentioned, this invention is not limited to these. may have a substituent, although an ethenyl group, a 2-tert-butylethenyl group, 2snpstituent, As an alkynyl group in which a vinyl group, 1-propenyl group, 1-butenyl group, etc. chlorophenyl group, p-bromo phenyl group, etc. as an alkenyl group which may have a group, a naphthyl group, a 2,4-bis(trifluoromethyl)phenyl group, p-fluorophenyl group, pgroup, p-tolyl group, a xylyl group, a mesityl group, a KUMENIRU group, p-methoxypheny group, an allyl group, benzyl, etc. as an aryl group which may have a substituent, A phenyl group, A pentyl group, a hexyl group, an octyl group, a decyl group, dodecyl, an octadecyl group, An isopropyl group, a butyl group, an isobutyl group, a sec-butyl group, a tert-butyl As an alkyl group which it may have, a substituent A methyl group, an ethyl group, a propyl

efficiency of a free radical increases and to aim at improvement in sensitivity as a result. preferentially and efficiently, it is because it becomes possible to think that generating increases, and these bases decompose from sulfonium or an oxo sulfonium cation which the electronic receptiveness of a polymerization initiator shown by a general formula (2) substituent, or a phenacyl group which may have a substituent, By being tinged with character may have a substituent, benzyl which may have a substituent, a vinyl group which may have a dye (C) as this reason, To at least one of  $\mathbb{R}^3$ ,  $\mathbb{R}^4$ , and  $\mathbb{R}^5$ . By introducing an allyl group which boron complex shown by a general formula (2) should be effectively carried out with cyanine [0037]Although it is required that photosensitization decomposition of the sulfonium organicity is an aryl group in which  $\mathsf{R}^8, \mathsf{R}^9,$  and  $\mathsf{R}^{10}$  may have a substituent. group which may have a substituent, is an alkyl group in which  $\mathbb{R}^7$  may have a substituent, and

[0038]A concrete compound (I) thru/or a compound (r) is shown below.

[Formula 14] [0.039]Compound (I)

[Formula 15] (m) bnuoqmoO[0400]

[0041]Compound (n)

[0042]Compound (o)

(q) brinoqmoO(5400] [Formula 18]

[0044]Compound (q) [Formula 19]

[0045]Compound (r)

may be added if needed.

a chain transfer agent, an antioxidant, thermal polymerization inhibitor, a leveling agent, etc. exposure may be 1% or more. Furthermore, various additive agents, for example, a plasticizer, prepare the concentration of cyanine dye (C) so that the transmissivity of the laser beam for an restriction in the compounding ratio of each above-mentioned ingredient, it is preferred to preferred that refractive index difference is 0.02 or more further. Although there is no specific or more ethylenic unsaturated bonds which can polymerize is 0.005 or more, and it is more refractive index difference with the refractive index of the compound (B) which has at least one monomer, or a copolymer of the vinyl monomer of two or more ingredients, It is preferred that The retractive index of the high molecular compound (A) which is a homopolymer of a vinyl obtained by the ability to apply it in the shape of a coat on substrates, such as a glass plate, dissolved into a suitable solvent by arbitrary concentration, and the obtained solution can be initiator which consists of cyanine dye (C) and a sulfonium organicity boron complex (D) is ethylenic unsaturated bonds which can polymerize, And although the photopolymerization vinyl monomer of two or more ingredients, The compound (B) which has at least one or more molecular compound (A) which is a homopolymer of a viny! monomer, or a copolymer of the [0046] The photosensitive materials for hologram recording of use by this invention, The high

[0.047]Quantity occupied in all the photosensitive materials of a high molecular compound (A)

which is a homopolymer of a vinyl monomer or a copolymer of a vinyl monomer of two or more ingredients is 30 to 70 % of the weight preferably ten to 90% of the weight, in order to perform hologram recording which has high diffraction efficiency. The amount of compound (B) used which has at least one or more ethylenic unsaturated bonds which can polymerize, it is 40 . 150 weight section preferably ten to 200 weight section for incomposition of two propositions weight section which is a homopolymer of a vinyl monomer of the compound (A) 100 of two or more ingredients which is a base material. Since maintenance of high diffraction of the ingredients which is a base material since of high diffraction of two or more ingredients which is a sensitivity characteristic will become difficult if it deviates from a mentioned range, it is not desirable.

Inneutioned range, it is not desirable.

[0048]Cyanine dye (C) of a general formula (1) among photopolymerization initiators of use by a mention, it is preferably used in the range of 0.5 - 15 weight section 0.1 to 30 weight section which is a homopolymer of a vinyl monomer, or a copolymer of a vinyl monomer of two or more ingredients. The amount used receives restriction with optical density of photosensitive share thickness and this thickness. That is, it is preferred that optical density uses if in the range which does not exceed 2. A sulfornium organicity boron complex (D) is preferably used in the range which does not exceed 2. A sulfornium organicity boron complex (D) is preferably used in the range which is a sulfornium organicity accounts compound (A) 100 weight section which is a 0.1 to 20 weight section to high molecular compound (A) 100 weight section which is a homopolymer of a vinyl monomer, or a copolymer of a vinyl monomer of two or more

ingredients.

[0049]A film is formed on substrates, such as a direct glass plate and a plastic film, by using a sensitizing solution made to dissolve hologram recording photosensitive materials of the above composition ratios in a suitable solvent for a spin coater, a roll coater, a knife coating machine, or a bar coating machine. A protective layer for oxygen interception may be formed on it. A protective layer for oxygen interception may be formed on it. A protective layer may paste together a film or boards made from a plastic, such as polyolefine, polyvinyl chloride, a polyvinylidene chloride, polyvinyl alcohol, or polyethylene terephthalate, or may carry out coating of the solution of said polymer. A glass plate may be pasted together. In order to improve siritightness between a protective layer and a film (and) or between a bubstance and a film (and) or between a fubstrate and a film, a binder or a liquefied substance may be made to exist.

[0050]A sensitive plate or a film formed above with hologram recording photosensitive materials produced by waking it like, After fixing to an electrode holder so that it may not be influenced by wibration, it irradistes with visible light laser, such as helium-Ne laser, At ion laser, and rubly laser, and volume phase hype hologram record is laser, helium-Ne laser, Ke tion

performed. An example of an optical system is shown in drawing 1. [0051]A sensitive plate or a film by which hologram recording was carried out needs to apply light and (or) heat for fixing of an unexposed portion or a portion with few light exposures. Visible light and (or) ultraviolet radiation, such as a carbon arc, a high-pressure mercury-vapor lamp, a xenon lamp, a metal halide lamp, a fluorescent lamp, a tungsten lamp, etc. besides

visible light laser, are used for light. As for heat, heating among 40 to 160 \*\*, is preferred. Light and heat may be simultaneously applied to a sensitive plate or a film by which hologram recording was carried out, or light and heat may be applied independently. Operation of recording was carried out, or light and heat may be applied independently. Operation of recording was carried out, or light and (or) heat may be performed. [Function] The high molecular compound (A) whose hologram recording material of use by this invention is a homopolymer of a viryl monomer, or a copolymer of the vinyl monomer of two or more ingredients, The combination of the compound (B) and cyanine dya (C) which have at more ingredients, The combination of the compound (B) and cyanine dya (C) which have at least one ethylenic unsaturated bond which can polymerize, and a sulfonium organicity boron least one ethylenic unsaturated bond which can polymerize, and a sulfonium organicity boron

exposince, and the transparency of a hologram is made to improve by them after this. coloring component is effectively decolorized by down stream processing, especially optical and a hologram without aging is manufactured. The cyanine dye (C) which remained as a at this time, Crosslinking reaction arises between (A) and (B), it is still more chemically stable monomer of two or more ingredients has an acryfyl group (meta) which can construct a bridge compound (A) which is a homopolymer of a vinyl monomer or a copolymer of the vinyl and a hologram without aging is manufactured. In the case where the high molecular bonds in which the unreacted polymerization is possible is promoted, it is chemically stable the polymerization of the compound (B) which has at least one or more ethylenic unsaturated Furthermore, after hologram recording, by adding the tail end process by light and (or) heat, the volume phase type hologram with high diffraction efficiency was manufactured. interferential action of this laser beam and a weak part becomes large, and it is guessed that polymerize is 0.005 or more, the retractive index difference of the strong part of the compound (B) which has at least one or more ethylenic unsaturated bonds which can ingredients at this time, When refractive index difference with the refractive index of the homopolymer of a vinyl monomer, or a copolymer of the vinyl monomer of two or more hologram is recorded. The refractive index of the high molecular compound (A) which is a interferential action, as a result, among both parts, refractive index difference arises and a interferential action of this laser beam, density improves compared with the weak part of the strong part of the interferential action of this laser beam. Therefore, in the strong part of the interferential action in that case, and which can be polymerized spreads and polymerizes to ethylenic unsaturated bonds which can polymerize arises, which are in the weak part of where the polymerization reaction of the compound (B) which has at least one or more radiation part, The compound (B) which has at least one or more ethylenic unsaturated bonds with a laser beam in hologram recording I the strong part of this interferential action in a laser [0052]In [ if the hologram recording material of this photopolymerization nature is irradiated complex (D) is included.

[Example]Based on an example, this invention is explained more to details below. In each

[00023]

[0057]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a Table 3. dimethacrylate and also it was operated by the same method as Example 3 were shown in polymerized was changed to tetrabromobisphenol A ethylene oxide denaturation preservation stability test result when the monomer in example 38 Example 3 which can be [0056]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a Table 2. stability test result when it was operated by the same method as Example 3 were shown in sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation the sulfonium organicity boron complex (compound (m)) thru/or the compound (r), and also. A [0055]Replaced the sulforium organicity boron complex (I) in 12 to example 17 Example 3 with were collectively shown in Table 1. efficiency, diffraction efficiency, playback wavelength, and a preservation stability test result diffraction efficiency. The exposure energy quantity which gives the maximum diffraction and a value when a sample is not placed but direct incident light is received was made into light from a sample was detected. The ratio of the biggest value except regular reflection light monochromatic light was entered into the sample at the angle of 45 degrees, and the diffracted on the circumference with a radius [ centering on a sample ] of 20 cm. 0.3-mm-wide type spectrophotometer. This device can install a photograph multimeter with a 3-mm-wide slit [0054]Diffraction efficiency was measured with the product ARTmade from Jasco Industry25C hologram exposure, and it set in 120 \*\* oven after that for 1 hour. exposure, one side of 2 light flux was intercepted and it exposed to the same exposure time as Examples 7 and 9 using the 633-nm light of helium-Ne laser. After carrying out hologram 676-nm light of Kr ion laser was used in Example 10 using the 647-nm light of Kr ion laser in Examples 2, 4, and 5, the 514-nm light of Ar ion laser is used, in Examples 6, 8, and 11, the drawing 1. In Examples 1 and 3, the 488-nm light of Ar ion laser is used in that case, In performed to this sensitive plate using the optical system for hologram creation shown in slcohol was applied by a 3-mil applicator. Hologram exposure by two beam interference was sensitive plate for hologram recording was created. The 5-% of the weight solution of polyvinyl the thickness after sensitizing solution desiccation might be set to 10 micrometers, and the sulfonium organicity boron complex (compound (i)) was applied using a 3-mil applicator so that sensitizing solution which consists five copies and tetrachloroethane of 900 copies in a in phenoxy ethyl acrylate (POEA) Three copies, On a 100x125x3-mm glass plate, the (compound (a)) thru/or the compound (k) expressed with 90 copies and a general formula (1) Example 1 - 11 poly methyl methacrylate (PMMA) 100 weight sections, The cyanine dye tollowing example, especially, a part expresses a weight section, as long as there is no notice.

breservation stability test result when the monomer in example 19 Example 3 which can be

polymerized was changed to N-vinylcarbazole and also it was operated by the same method as Example 3 were shown in Table 3.

[0058]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when the monomer in example 20 Example 3 which can be polymerized was changed to tribromo FENORUTORI ethylene oxide denaturation scrylate and slaco it was operated by the same method as Example 3 were shown in Table 3.

[0059]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when the monomer in example 21 Example 3 which can be polymerized was changed to ferrocenyl-ethyl group methacylate and also it was operated by the same method as Example 3 were shown in Table 3.

[0060]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a the same method as Example 3 were shown in Table 3.

[0060]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when PMMA in example 22 Example 20 was changed to poly (isobornyl methacrylate) and also it was operated by the same method as Example 20 were shown in Table 3.

[0061]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when PMMA in example 23 Example 20 was changed to poly (vinylbutyrail) and also it was operated by the same method as Example 20 were shown in

l able 3. [0062]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when PMMA in example 24 Example 20 was changed to poly (vinyl acetate) and also it was operated by the same method as Example 20 were shown in

[0063]For PMMA in example 25 Example 20, acrylic acid potassium to eight-pair a copolymer two by the mole ratio of methyl methacrylate and chloromethyl styrene The inside of dimethylformamide, A sensitivity characteristic, diffraction efficiency, playback wavelength, and a preservation stability test result when it changed to the formation of oxygen existence and the high molecular compound (compound (s)) which made it react at 60 \*\* and introduced the

The high molecular compound (compound (s)) which made it react at 60 \*\* and introduced the AKURIRORIBU group and also was operated by the same method as Example 20 were shown in Table 3.

[0064]Compound (s)

Table 3.

CH SOOC-CH = CH S

wavelength, and a preservation stability test result when it was operated by the same method AKURIRORIRU group, and also. A sensitivity characteristic, diffraction efficiency, playback among toluene by having made dimethylaniline into the catalyst, and introduced the (combound (t)) which made acrylic acid react at the formation of oxygen existence, and 60 \*\* methacrylate to eight-pair a copolymer two. Changed to the high molecular compound [0065]PMMA in example 26 Example 20 by the mole ratio of methyl methacrylate and glycidyl

(1) bnuoqmo >[6600] as Example 20 were shown in Table 3.

group, and also. A sensitivity characteristic, diffraction efficiency, playback wavelength, and a dimethylformamide, made it react at a room temperature, and introduced the AKURIRORIRU combonuq (combonuq (n)) which oxygen-existence-izes acrylic acid chloride among hydroxyethyl methacrylate to eight-pair a copolymer two. Changed to the high molecular [0067]PMMA in example 27 Example 20 by the mole ratio of methyl methacrylate and 2-

were shown in Table 3. bieservation stability test result when it was operated by the same method as Example 20

COOCH<sup>3</sup> COOC<sup>5</sup>H, OC-CH=CH<sup>5</sup>
-(CH -C)<sup>5</sup> CH<sup>3</sup>
-(CH<sup>3</sup> CH<sup>3</sup>
-(CH<sup>3</sup> CH<sup>3</sup> [Formula 23] (u) bnuoqmo2[8800]

shown in Table 3. full notoethyl scrylate and also it was operated by the same method as Example 20 were result when tribromo FENORUTORI ethyleneoxide denaturation discrylate was changed to characteristic, diffraction efficiency, playback wavelength, and a preservation stability test [0069]PMMA in example 28 Example 20 to poly (p-bromophenyl methacrylate). A sensitivity

preservation stability test result when poly (p-bromophenyl methacrylate) in example 29 [0070]A sensitivity characteristic, diffraction efficiency, playback wavelength, and a

Example 28 were shown in Table 3. Example 28 was changed to poly (styrene) and also it was operated by the same method as

Table 3. preservation stability test result when it was operated by the same method as Example 20 in \*\*\*\*\*\* showed a sensitivity characteristic, diffraction efficiency, playback wavelength, and a FEMORALORI ethyleueoxide deustriustion discrylate - pentaerythritol -- dona -- KURIKETO [0071]PMMA in example 30 Example 20 to poly (alpha-naphthyl styrene). tribromo

compound (compound (v)) which introduced the AKURIRO group and also was operated wavelength, and a preservation stability test result when it changed to the high molecular existence, and 60 \*\*, and a sensitivity characteristic, diffraction efficiency, playback toluene, Used dimethylaniline for the catalyst, it was made to react at the formation of oxygen 2-hydroxyethyl acrylate by the mole ratio of styrene and a maleic anhydride The inside of [0072]Poly (p-bromophenyl methacrylate) in example 31 Example 28, To the copolymer of 9 to

by the same method as Example 28 were shown in Table 3.

[Formula 24] [0073]Compound (v)

[Lable 1] [4400]

東 憲	シニアン色素 (C) 化合物(a)	スルホニウム 有機約乗艦体(D) 化合物(1)	期分子 化合	(比合物 (A) PMMA	子 合物 (A) モノマー (B)  MMA 7ルド近移7月レート	MA (V)	数 (A) 素合性 数 (A) キノマー (B) MA 7.Jおはががりいー	数 (A) 集合性 記録波長 第光量 回析効率 数 (A) モノマー (B) (nm) (mJ/cs <sup>2</sup> ) (%) MA 7.Jłż.z/#/7/9-1 488 12 70	数 (A) 章合性 記録波長 第光量 数 (A) キノマー (B) (nm) (mJ/os²) MA 7ルキジエキが795~† 488 12	数 (A) 集合性 記録波長 第光量 回析効率 数 (A) モノマー (B) (nm) (mJ/cs <sup>2</sup> ) (%) MA 7.Jłż.z/#/7/9-1 488 12 70
2	化合物(b)	"	,		п	» 514		514 1	514 15 7	514 15 70
ω	化合物 (c)	n	×		*	4.88	4.8	488 1	488 10 7	488 10 70 48
4	化合物 (d)	п	"		n	" 514		514 1	514 15	514 15 70 5
cn	化含物 (e)		"		"	" 514		514	514 12 7	514 12 70 5
6	化合物(f)	R	2		*	" 633	co.	633 1	633 10 7	633 10 70 62
7	化合物(g)	×	"		п	" 647	6	647 1	647 15 7	647 15 70 64
00	化合物(h)	"	"		"	. 633	6 3	633 1	633 10 7	633 10 70 62
9	化合物(1)	*	"		"	" 647	6	647 1	647 12 7	647 12 70 6
1 0	化合物 (j)		"		"	,	" 676 8	676	676 8	678 0 70 670
-		*	T							0.0

preservability 2 shows the endurance under 90 \*\* preservation. [0075]The preservability 1 shows the endurance under 25 \*\* and 60%RH preservation. The

[9400]

[Table 2]

[8700] preservability 2 shows the endurance under 90 \*\* preservation. [0077] The preservability 1 shows the endurance under 25 \*\* and 60%RH preservation. The

[Table 3]

光雅光 29 2 7 2 6 25 2 4 2 2 3 ... 00 N (b会物(c) ツードン句楽 6 ¥ × ĕ ŧ ŧ \$ ŧ 264294行股内 業務体 (D) 化金物(1) ŧ . 4 ٩ 4 3 4 'n 5 高分子化合物 (A) PMMA \$! (a-t7f5xfVz) (MFK) 6\$ \$9 (p-708712W39 \$10-}) 代合物 (u) 化合物(1) 化合物(s) 4-44.853) (g ł (4-4174:3) (1-4646973) トリプロセフェノールトリュナレンオキンド変性アクリヤート ペンタエリスリトールトリアクリシー フェロセニルエチルメタクリレート トリフルオロエチルアクリレート りがないフェノーありますレンストラド変性まプリケート #-ビニルカルベノール トラf0ftxフォメ/ーカ A xfv/dもyf変性がf598-1 トリフルボロエチルアクリレート ⇌ E> 4 4 爸 (8) (mm) 8 8 A-06 00 8 8 8 8 8 8 8 8 80 源水瓜 (m J /cn\*) 2 5 10 Š 50 5 0 2 0 8 20 23 S 0 œ CSC 1888 90 9 0 9 6 9 0 9 0 0 8 CIS CIS 9 8 20 8 0 8 9 0 0 0 プレイバック 遊長(nm) 83 4 8 3 4 8 3 8 3 4 8 3 œ 30 ω ω ου ω οο ω ω ω οα ω 3 60 မ (8) >180 80 1 8 0 80 80 8 0 8 80 80 8 0 (田) **>**1 × 7 ×. ×. ٧, V × 7 > 7 ٧, × 1 >7 ٧ ~ >7

[0079]The preservability 1 shows the endurance under 26 \*\* and 60%RH preservation. The preservability 2 shows the endurance under 90 \*\* preservation.

[0800]

[Effect of the Invention]It depends on this invention, it crosses to a large wavelength area, and precomes it is chemically stable at high resolution, high diffraction efficiency, and high transparency simple.

[0081]

[Translation done.]